

**Amendment to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-16 (cancelled)

Claim 17 (currently amended): In a data communication network, a method for selecting protectable paths through a network by developing a shortest path tree rooted at a first node, said method comprising:

identifying a plurality of shortest paths having equal costs from ~~[[a]]~~ said first node to a second node;

~~selecting~~ identifying one of said plurality of shortest paths that has an edge disjoint alternate path and is thus protectable by examining a parent node of each of said plurality of shortest paths ~~and identifying said selected shortest path~~ to be one for which the parent node has not been marked, indicating that there is not a plurality of equal cost shortest paths to said parent node from said first node, said parent node being a last node before said second node on any ~~selected~~ path to said second node; and

marking said second node to indicate a plurality of shortest paths having equal costs from said first node to said second node; ~~and~~

~~adding one or more new path(s) to a set of paths in said network, said new path(s) extending from said first node through said second node to one or more destination nodes adjacent to said second node.~~

Claims 18-19 (cancelled)

Claim 20 (previously presented): The method of claim 17 further comprising:  
using said set of paths in computation of a shortest path tree.

Claim 21 (previously presented): The method of claim 17 wherein said each of said shortest paths comprises either an individual path segment or a plurality of contiguous path segments, each of said path segments comprises an individual link or a plurality of contiguous links, and each of said links comprises a communications channel between two adjacent nodes.

Claim 22 (previously presented): The method of claim 17 wherein said equal costs are determined in accordance with a cost metric defined for said links of said network.

Claim 23 (previously presented): The method of claim 17 wherein at least one of said plurality of shortest paths was found in preceding computations in developing a shortest path tree.

Claim 24 (currently amended): In a data communication network, a computer program product for selecting protectable paths through a network by developing a shortest path tree rooted at a first node, said computer program product comprising:

code that **identifies** causes identification of a plurality of shortest paths having equal costs from **[[a]]** said first node to a second node;

code that **selects** causes identification of one of said plurality of shortest paths that has an edge disjoint alternate path and is thus protectable by examining a parent node of each of said plurality of shortest paths ~~and identifying said selected shortest path~~ to be one for which the parent node has not been marked, indicating that there is not a plurality of equal cost shortest paths to said parent node from said first node, said parent node being a last node before said second node on any ~~selected~~ path to said second node;

code that ~~marks~~ causes marking of said second node to indicate a plurality of equal cost shortest paths from said first node to said second node;

~~code that adds one or more new paths to a set of paths in said network, said new paths extending from said first node through said second node to one or more destination nodes adjacent to said second node;~~ and

a computer-readable storage medium that stores the codes.

Claims 25-26 (cancelled)

Claim 27 (previously presented): The computer program product of claim 25 further comprising:

code that uses said set of paths in computation of a shortest path tree.

Claim 28 (previously presented): The computer program product of claim 24 wherein each of said shortest paths comprises either an individual path segment or a plurality of contiguous path segments, each of said path segments comprises an individual link or a plurality of contiguous links, and each of said links comprises a communications channel between two adjacent nodes.

Claim 29 (previously presented): The computer program product of claim 24 wherein said equal costs are determined in accordance with a cost metric defined for said links of said network.

Claim 30 (previously presented): The computer program product of claim 24 wherein at least one of said plurality of shortest paths was found in preceding computations in developing a shortest path tree.

Claim 31 (currently amended): In a data communication network, apparatus for selecting protectable paths through a network by developing a shortest path tree rooted at a first node, said apparatus comprising:

means for identifying a plurality of shortest paths having equal costs from ~~[[a]]~~ said first node to a second node;

means for selecting one of said plurality of shortest paths that has an edge disjoint alternate path and is thus protectable by examining a parent node of each of said plurality of shortest paths ~~and identifying said selected shortest path~~ to be one for which the parent node has not been marked, indicating that there is not a plurality of equal cost shortest paths to said parent node from said first node, said parent node being a last node before said second node on any ~~selected~~ path to said second node; and

means for marking said second node to indicate a plurality of equal cost shortest paths from said first node to said second node; ~~and~~

~~means for adding one or more new paths to a set of paths in said network, said new paths extending from said first node through said second node to one or more destination nodes adjacent to said second node.~~

Claims 32-33 (cancelled)

Claim 34 (previously presented): The apparatus of claim 31 further comprising:  
means for using said set of paths in computation of a shortest path tree.

Claim 35 (previously presented): The apparatus of claim 31 wherein said each of said shortest paths comprises either an individual path segment or a plurality of contiguous path segments, each of said path segments comprises an individual link or a plurality of contiguous links, and each of said links comprises a communications channel between two adjacent nodes.

Claim 36 (previously presented): The apparatus of claim 31 wherein said equal costs are determined in accordance with a cost metric defined for said links of said network.

Claim 37 (previously presented): The apparatus of claim 31 wherein at least one of said plurality of shortest paths was found in preceding computations in developing a shortest path tree.

Claim 38 (new): The method of claim 17 further comprising:  
adding one or more new path(s) to a set of paths in said network, said new path(s) including said identified shortest path and extending beyond said second node to one or more destination nodes adjacent to said second node.

Claim 39 (new): The computer program product of claim 24 further comprising:  
code that causes addition of one or more new path(s) to a set of paths in said network, said new path(s) including said identified shortest path and extending beyond said second node to one or more destination nodes adjacent to said second node.

Claim 40 (new): The apparatus of claim 31 further comprising:  
means for adding one or more new path(s) to a set of paths in said network, said new path(s) including said identified shortest path and extending beyond said second node to one or more destination nodes adjacent to said second node.

Claim 41 (new): In a data communication network, apparatus for selecting protectable paths through a network by developing a shortest path tree rooted at a first node, said apparatus comprising:

- a processor; and
- a computer-readable storage medium storing software for execution by said processor, said software comprising:
  - code that causes identification of a plurality of shortest paths having equal costs from said first node to a second node;
  - code that causes identification of one of said plurality of shortest paths that has an edge disjoint alternate path and is thus protectable by examining a parent node of each of said plurality of shortest paths to be one for which the parent node has not been marked, indicating that there is not a plurality of equal cost shortest paths to said parent node from said first node, said parent node being a last node before said second node on any path to said second node; and
  - code that causes marking of said second node to indicate a plurality of equal cost shortest paths from said first node to said second node.

Claim 42 (new): The apparatus of claim 41 wherein said software further comprises:  
code that uses said set of paths in computation of a shortest path tree.

Claim 43 (new): The apparatus of claim 41 wherein each of said shortest paths comprises either an individual path segment or a plurality of contiguous path segments, each of said path segments comprises an individual link or a plurality of contiguous links, and each of said links comprises a communications channel between two adjacent nodes.

Claim 44 (new): The apparatus of claim 41 wherein said equal costs are determined in accordance with a cost metric defined for said links of said network.

Claim 45 (new): The apparatus of claim 41 wherein at least one of said plurality of shortest paths was found in preceding computations in developing a shortest path tree.

Claim 46 (new): The apparatus of claim 41 wherein said software further comprises:  
code that causes addition of one or more new path(s) to a set of paths in said network, said new path(s) including said identified shortest path and extending beyond said second node to one or more destination nodes adjacent to said second node.